



ER Site No. 2: Classified Waste Landfill (TA-II)

ADS: 1303

Operable Unit: Tech Area II

Site History	1
Constituents of Concern.....	3
Current Hazards	4
ER Site 2:	4
Trailers east of Bldg. 919:.....	4
Transportainers 92 and 93 Northeast of Bldg. 919:.....	4
Room 2 in Bldg. 919:.....	4
White Tent Structure Southeast of Bldg. 919:	4
Fuel Storage Area North of Bldg. 920:.....	4
Operations Area East of Bldg. 907:	4
Propane Storage West of Bldg. 907:.....	4
Secured and Sealed Transportainers and Bldg. 920:	4
Sample Storage Shed and Cabinets East of Bldg. 919:	4
Gas Cylinder Storage at Southeast Corner of Bldg. 919:	4
Current Status of Work	5
Future Work Planned	5
Waste Volume Estimated/Generated	5

Primary Contact: [Dick Fate](#)

Office Phone: 284-2568

Site History

The Classified Waste Landfill, ER Site 2, covers approximately 1.5 acres in a 3.5 acre area of concern in the eastern portion of Technical Area II (TA-II), which is a 45 acre fenced area. Classified material is known to have been buried in the landfill from the early 1950s through 1987; however, disposals may have started as early as 1947. The last burial of classified material occurred on October 13, 1987.

The materials buried were surplus classified items that by shape or content contained information important to national security. Until 1958, no records were maintained for material disposed of in the landfill. An inventory of the classified material buried prior to June 1972 was apparently destroyed during file purging following a DOE paperwork reduction initiative. Information on ER Site 2 was compiled from interview notes, Delivery to Reclamation (DTR) records, a Burial Log Book, and the Nuclear Materials Management and Safeguard System (NMMSS) database (ORNL 1995).

The classified material was primarily buried in unlined, east-west oriented trenches that ranged from 8- to 16-ft wide and 12- to 15-ft deep. The trenches were not constructed with leachate containment or monitoring devices. During disposal operations, the trenches were backfilled one section at a time after waste emplacement, and each section was covered with native soil. Steel pipes were placed at the end of each section as it was filled; the pipes were labeled with reference to their location (e.g., Row 3, Pit 10). Based on the pit marker labels once visible at the site, eight trenches existed at the landfill (Rows A, B, C, D, E, 1, 2, and 3). Prior to 1972, the burials in the Classified Waste Landfill were designated as 1, 2, and 3. The last pit in Trench 3 (Pit 10) was filled in June 1972. From that time to October 1987, the trenches were designated with letters (A through E).

A burial log for the materials buried in the trenches from June 1972 through October 1987 described the contents of Row 3, Pit 10, as well as the contents of Rows A through E. This existing inventory provided only limited assistance in identifying specific contaminants that may have been buried at the site. However, the DTR forms, which corresponded to the burial logbook listed some individual items disposed of in the landfill, cell by cell within the trenches.

An August 1959 Sandia Plant Engineering drawing showed the approximate locations of four burial pits and one cut-and-cover trench in the eastern portion of TA-II. Between May 1960 and April 1963, solid waste from the South Albuquerque Works Plant (a former American Car & Foundry [ACF] weapons plant established in 1952) was reportedly buried at these five locations. The ACF facility reportedly manufactured weapon case parts and weapon handling equipment. The ACF pits were reportedly 6- to 12-ft in diameter and 12- to 18-ft deep; the cut-and-cover trench was 12-ft by 6-ft by 10-ft. Upon excavation of these pits in March-April 1998, it was found that they contained primarily stainless steel items, thermal batteries, and other weapon components. The South Albuquerque Works Plant did not handle radioactive materials and disposed of its chemical waste at Kirtland Landfill #2.

Historical information suggested that some tubes (possibly glass) containing nickel and strontium radioisotopes may have been buried in the landfill, as well as other components that may have contained tritium. Lead, polychlorinated biphenyls (PCBs), depleted uranium (DU, U-238), beryllium, and chlorinated organic compounds, including trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA), were among the potential COCs identified during interviews that may have been disposed in the Classified Waste Landfill. A review of inventory records (post 1972) identified the following specific hazardous or potentially hazardous items disposed in the landfill:

Thermal batteries (some unfired); an x-ray fixture and device holder; at least 20 items marked radioactive; expended tritium tubes; beryllium disks; a high-voltage power supply; components containing radioactive nickel and tritium; a liquid acceleration switch (possibly containing mercury); and items with potential high explosive (HE) compounds.

Other items buried in the landfill included: an assortment of weapon cases, artillery shells and related components, lasers, furnace parts, radar equipment, and aluminum parts. Radioactive calibration sources were also reportedly buried. Classified electronic components containing gold plating, silver, and platinum were also buried. Most items in the Burial Log for the

Classified Waste Landfill were listed as security containers, hoppers, missiles, skids, and wooden boxes. The DTRs listed specific information on the quantity of a particular item (e.g., thermal batteries, neutron generators, weapon casings, etc.).

Between 1978 and 1987, all material was reportedly screened for radiation and chemicals prior to disposal in the landfill. However, sealed containers were not opened and the contents screened prior to disposal. No radioactive or hazardous materials, other than metals and plastics, reportedly were disposed of in the CWLF during its operation in the 1980s.

The regional aquifer in the vicinity of ER Site 2 is within the upper unit of the Santa Fe Group. The depth to the regional aquifer in the nearest monitor well to ER Site 2 (TA2-NW1-595) is approximately 520 feet (ft) below ground surface (fbgs) or 4,889.3 ft above mean sea level (famsl). A shallow water-bearing zone also exists in the vicinity of ER Site 2. The depth to the shallow zone ranges from approximately 267 to 320 fbgs (5,081 to 4,889 famsl). Monitor wells TA2-SW1-325, TA2-NW1-320, WYO-2, TA2-W-19, and TA2-W-01 are located in the vicinity of ER Site 2 and are screened in the shallow water-bearing zone.

The area is essentially flat, with a gentle slope to the west of approximately 4 percent. Tijeras Arroyo, the largest drainage feature at SNL/NM, is located approximately one half mile from the site. The surface geology consists of unconsolidated alluvial and colluvial sedimentary deposits ranging from clay to gravel derived from the the granitic rocks of the Sandia Mountains and greenstone, limestone, and quartzite derived from the Manzanita Mountains. The surface deposits are underlain by the upper unit of the Santa Fe Group. In this area, the piedmont-slope alluvium may be up to 100 ft thick, and the upper Santa Fe unit is approximately 1,200 ft thick.

The piedmont-slope alluvium, which was deposited by the ancestral Tijeras Arroyo, is generally coarse-grained sand and gravel. The upper Santa Fe unit was deposited from 5 to 1 million years ago and consists of coarse- to fine-grained fluvial deposits from the ancestral Rio Grande that intertongue with coarse-grained alluvial-fan/piedmont-veneer facies, which extend westward from the Sandia and Manzanita Mountains. ER Site 2 is near the easternmost limit of the ancestral Rio Grande deposits.

Several rift-bounding faults are located east of ER Site 2. The nearest is the Sandia fault-zone, characterized by north-trending, west-dipping normal faults. The westernmost fault is located approximately 1.2 miles east of the site.

Constituents of Concern

Radioactive nickel, radium, thorium, depleted uranium (DU, U-238), and tritium

Metals (lead, beryllium, cadmium, chromium)

PCBs

HE compounds

VOCs (TCE, 1,1,1-TCA, and possibly toluene and benzene)

Current Hazards

ER Site 2:

Site 2 operations involve specific areas in the eastern half of TA-II outlined below. The Site 2 excavation is open and unfenced, with steeply sloped sides. Do not walk or drive on any soil piles stored onsite, or in the roped-off area just east of the TA-II fence.

Trailers east of Bldg. 919:

Trailers may contain breathing air cylinders for self-contained breathing apparatus (SCBAs) or calibration gases, including isobutylene, pentane, nitrogen, and an argon/methane mixture.

Transportainers 92 and 93 Northeast of Bldg. 919:

Transportainers contain motor oil and gear lube and may also contain cans of engine starter fluid.

Room 2 in Bldg. 919:

Contains nickel/cadmium batteries for equipment and sealed radiological calibration sources, including Am-241, Pu-239, Tc-99, and Cs-137.

White Tent Structure Southeast of Bldg. 919:

A roped-off section inside the north end of the structure is posted as a Radioactive Contamination Area.

Fuel Storage Area North of Bldg. 920:

Two trailers with diesel fuel.

Operations Area East of Bldg. 907:

Storage area contains gas cylinders of breathing air, oxygen, nitrogen, and acetylene.

Propane Storage West of Bldg. 907:

Storage tank contains LPG. The shed next to the tank contains smaller LPG cylinders.

Secured and Sealed Transportainers and Bldg. 920:

Transportainers east, west, and south of Bldg. 920, east of Bldg. 907, and Bldg. 920 contain classified material that may present hazards from heavy metals dust, and may contain very small amounts of high explosives, as well as sealed radioactive sources including Ni-63, Ra-226, Am-241, and Cs-137. Drums may contain soil contaminated with U-238 or U-238 fragments. Components with liquid mercury or PCBs in small amounts may also be a hazard. Bldg. 920 may contain propane-powered forklifts and/or heaters.

Sample Storage Shed and Cabinets East of Bldg. 919:

Shed and cabinets contain soil samples that may be considered radioactive material.

Gas Cylinder Storage at Southeast Corner of Bldg. 919:

Gas cylinders contain argon/methane mixture.

Current Status of Work

Investigations to date have included:

Passive soil vapor surveys, geophysical surveys, surface radiation surveys, borehole drilling, and subsurface soil sampling and analysis. The geophysical survey conducted in 1997, identified 84 anomalies (trenches and pits within trenches).

A Voluntary Corrective Measure (VCM) to excavate the landfill began in March 1998 and was completed on February 17, 2000. Approximately 50,000 cubic yards of soil were excavated and more than 600 tons of artifacts were removed. More than 200 tons of materials have been recycled. It is estimated that approximately 70 percent of the classified materials will be recycled by the end of the project.

Additional sampling of the excavated soil was conducted at the request of the New Mexico Environment Department (NMED) to further justify the intent to use the excavated soil as backfill. In concurrence with NMED, a Sampling and Analysis Plan was developed to sample the stockpiled soil for VOCs, semivolatile organic compounds (SVOCs), PCBs, tritium, and gross alpha/beta. PCBs were detected in the majority of the soil piles. Most concentrations were below 1 milligram (mg)/kilogram (kg), and the maximum concentration was 5.56 mg/kg. An addendum to the NFA was submitted in December of 2002 that contained the data from the additional characterization that was requested by NMED and a new risk assessment was performed. On January 17, 2003 NMED deemed site 2 appropriate for NFA pending an EPA approval of TSCA requirements.

Future Work Planned

The VCM excavation of the landfill has been completed. It is anticipated that this will be the final measure for cleanup. The VCM activities yet to be completed include: demilitarization, recycling, and waste management related to material removed from the excavation; backfill and revegetation. Depending on decisions made by NMED, DOE and Sandia, there might be a future need for institutional controls for the backfilled VCM excavation area.

Waste Volume Estimated/Generated

Waste volumes estimated for ER Site 2 for the anticipated final VCM are 150 cubic yards (cy) of bulk hazardous waste requiring stabilization, 150 cy of radioactive waste, 35 cy of bulk mixed waste debris not requiring stabilization, 35 cy of bulk mixed waste debris requiring stabilization, and 2,500 cy of nonhazardous waste. The majority (~99 percent) of the 50,000 cy of excavated soil will be returned to the excavation as backfill.

Information for ER Site 2 was last updated Feb 14, 2003.